

CLAIMS

What is claimed is:

1. A telescoping steering column assembly (10) comprising:
an upper jacket (12) having inner (14) and outer (16) surfaces with a hole (18) extending between said surfaces (14,16) thereof;
a lower jacket (20) having inner (22) and outer (24) surfaces with a hole (26) extending between said surfaces (22,24) thereof;
said jackets (12,20) having telescoping ends (28,30,32,34) disposed in overlapping telescoping relationship with one another;
a bearing (36) of plastic material disposed annularly about said outer surface (24) of said lower jacket (20) and engaging said inner surface (14) of said upper jacket (12); and
said bearing (36) being in a sliding engagement over said hole (18) in one of said jackets (12) and including a projection (38) extending into said hole (26) in the other of said jackets (20).

2. A telescoping steering column assembly (10) as set forth in claim 1 including a sleeve (40) disposed annularly about said lower jacket (20) and within said upper jacket (12) and having terminal ends (42,44) and defining an annular cavity (46) extending about said lower jacket (20) and open to said jackets (12,20), said bearing (36) disposed in said cavity (46) and engaging said jackets (12,20).

3. A telescoping steering column assembly (10) as set forth in claim 2 wherein said sleeve (40) includes a lip (48) extending from one of said terminal ends (42) of said sleeve (40) and abutting said telescoping end (34) of one said jackets (20).

4. A telescoping steering column assembly (10) as set forth in claim 3 wherein said projection (38) extends radially from said cavity (46).

5. A telescoping steering column assembly (10) as set forth in claim 4 wherein said projection (38) extends into said hole (26) in said lower jacket (20).

6. A telescoping steering column assembly (10) as set forth in claim 3 wherein said lip (48) engages said telescoping end (36) of said lower jacket (20).

7. A telescoping steering column assembly (10) as set forth in claim 2 including

a second hole (64,66) in each of said jackets (12,20) and a second bearing (60) of plastic material spaced from said first mentioned bearing (36) and in sliding engagement over said second hole (66) in one of said jackets (20) and including a second projection (62) extending into said second hole (66) in the other of said jackets (12),

a second sleeve (50) disposed annularly about said lower jacket (20) and within said upper jacket (12) and having terminal ends (52,54) and defining an annular cavity (56) open to said jackets (12,20) in said cavity (56) of said second sleeve (50) and engaging said jackets (12,20).

8. A telescoping steering column assembly (10) as set forth in claim 7 wherein said first mentioned sleeve (40) includes a lip (48) abutting said telescoping end (34) of said lower jacket (20) and said second sleeve (50) includes a lip (58) abutting said telescoping end (28) of said upper jacket (12).

9. A telescoping steering column assembly (10) as set forth in claim 8 wherein said projection (38) of said first bearing (36) extends into said hole (26) in said lower jacket (20) and said projection (62) of said second bearing (60) extends into said second hole (66) in said upper jacket (12).

10. A method of making a telescoping steering column assembly (10) comprising the steps of:

disposing a lower jacket (20) having a hole (26) extending between inner (22) and outer (24) surfaces and a telescoping end (34) in telescoping relationship within an upper jacket (12) having a hole (18) extending between inner (14) and outer (16) surfaces and a telescoping end (30);

injecting a plastic material (P) between the upper (12) and lower (20) jackets and into the respective holes (18,26) in the jackets (12,20); and

removing the plastic material (P) from the hole (18) in only one of the jackets (12) while retaining the plastic material (P) in the hole (26) in the other jacket (20).

11. A method as set forth in claim 10 including defining a cavity (46) extending annularly about the lower jacket (20) and within said upper jacket (12).

12. A method as set forth in claim 11 wherein the step of defining the cavity (46) includes disposing a sleeve (40) having terminal ends (42,44) and defining the annular cavity (46) open to the jackets (12,20).

13. A method as set forth in claim 12 wherein the step of disposing the sleeve (40) is further defined as disposing the sleeve (40) having a lip (48) extending from one of the terminal ends (42) of the sleeve (40) and abutting the telescoping end (28) of one of the jackets (20).

14. A method as set forth in claim 10 including defining a second hole (64), (66) extending between the inner and outer surfaces of each of the jackets (12,20).

15. A method as set forth in claim 14 including defining a second cavity (56) extending annularly about the lower jacket (20) and within said upper jacket (12).

16. A method as set forth in claim 15 wherein the step of defining the second cavity (56) includes disposing a second sleeve (50) having terminal ends (52,54) and defining the annular cavity (56) open to the jackets (12,20).

17. A method as set forth in claim 16 wherein the step of disposing the second sleeve (50) is further defined as disposing the second sleeve (50) having a lip (58) extending from one of the terminal ends (54) of the second sleeve (50) and abutting the telescoping end (28) of the other of the jackets (20).

18. A method as set forth in claim 10 wherein the step of injecting the plastic material (P) is further defined as forming a bearing (36) disposed within the annular cavity (46) having a projection (38) extending into the hole (26) in the lower jacket (20) and a second bearing (60) disposed within the second annular cavity (56) having a projection (62) extending into the hole (64) in the upper jacket (12).

19. A method as set forth in claim 10 wherein the step of removing the plastic material (P) includes extracting the plastic material (P) from one of the holes (18) of the upper jacket (12) abutting the bearing (36) and one of the holes (66) of the lower jacket (20) abutting the second bearing (60).

20. A method as set forth in claim 19 including blocking the plastic material (P) injected between the upper (12) and lower (20) jackets from penetrating inside the lower jacket (20) by inserting a bar (126) therewithin.

21. A telescoping steering column assembly (10) comprising:

an upper jacket (12) of a generally tubular configuration having leading (28) and trailing (30) ends and inner (14) and outer (16) surfaces and at least one hole (18) extending therebetween;

a lower jacket (20) of a generally tubular configuration having leading (32) and trailing (34) ends and inner (22) and outer (24) surfaces and at least one hole (26) extending therebetween;

said lower jacket (20) being engaged within said upper jacket (12) in telescoping fashion;

a sleeve (40) disposed between said lower (12) and upper (20) jackets having terminal ends (42,44) and defining an annular cavity (46) open to said jackets (12,20);

said sleeve (40) having a lip (48) integral with and extending upwardly from one of said terminal ends (42) of said sleeve (40) to abut said telescoping end (34) of one of said jackets (20); and

a bearing (36) disposed in said annular cavity (46) having a projection (38) extending into said hole (26) in one of said jackets (20) and being in a sliding engagement over said hole (18) in the other of said jackets (12).